

SUPPLEMENTARY MATERIALS

Table S1. Amount of nitrogen (N), phosphorus (P₂O₅) and potassium (K₂O) applied by fertigation to soil, the mean yield and brix degree of tomatoes of processing tomato fields located in Modena (MO), Ferrara (MEZ) and Ravenna (RA) provinces, Emilia Romagna Region, Italy.

Coordinates	Farm	Fertilizer	N	P ₂ O ₅	K ₂ O	yield	Brix degree
UTM 32 T			kg ha ⁻¹	kg ha ⁻¹	kg ha ⁻¹	t ha ⁻¹	%
686035.47 m E - 4974881.07 m N	MO1	18/46 ammonium nitrate34-0-0 MAP 12-61 potassium nitrate 13-0-46 <i>sum</i>	54 165 24 19 262	138 122 260	 69 69	 125	
675223.52 m E - 4966212.51 m N	MO2	ammnium nitrate 34-0-0 UREA 46 MAP 12-61 potassium nitrate 13-0-46 <i>sum</i>	66 138 18 13 235	 91 91	 46 46	 73	
669445.08 m E - 4973824.04 m N	MO3	Nutrifos HP idrocomplex Super Robor <i>sum</i> MO mean values	16 79 45 212 236	38 47 15 150 167	 84 15 71 62	 85 94	 5.1
283281.05 m E - 4916658.39 m N	RA1	ammonium nitrate 34(180) vitagreen 8-16-40 hi-sol 0-0-52 <i>sum</i>	180 80 260	 160 160	 90 60 150	 84	
283115.31 m E - 4916668.69 m N	RA2	ammonium nitrate 34(180) vitagreen 8-16-40 hi-sol 0-0-52 <i>sum</i> RA mean values	180 80 260 260	 160 160 160	 90 60 150 150	 63 74	 4.1
265632.12 m E - 4946511.81 m N	MEZ 1	Polyfosphate 10-34 (N-P 150), Tropicote 15-26 (N-CaCO ₃ , 150),ammonium nitrate (250) Polyfosphate 10-34 (N-P 150),	129	142	221	65	
264716.08 m E - 4950650.81 m N	MEZ 2	Tropicote 15-26 (N-CaCO ₃ , 150),ammonium nitrate (250) Polyfosphate 10-34 (N-P 150),	84	104	150	63	
269094.68 m E - 4946090.42 m N	MEZ 3	Tropicote 15-26 (N-CaCO ₃ , 150),ammonium nitrate (250) MEZ mean values	71 94	104 117	150 174	74 67	 3.4

Table S2. The scores of indicators for BFIs calculation.

Indicators	Scores				
	1	2	3	4	5
Soil organic matter (†)	<1	1-1.5	1.5-2	2-3	>3
Microbial C (Cmic)	<100	100-200	200-300	300-400	>400
Metabolic quotient (qCO ₂)	>0.4	0.3-0.4	0.2-0.3	0.1-0.2	<0.1
Mineralization quotient (qM)	<1	1-2	2-3	3-4	>4

(†) calculated as organic C x 1.72

Table S3. Results of Kruskal-Wallis test on the nutrients content in rhizosphere (Rhizo) and tomato organs (Roots, Old and Young leaves, Stem, Fruit) in processing tomato fields located in Modena (MO), Ferrara (MEZ) and Ravenna (RA) provinces, Emilia Romagna Region, Italy.

Nutrients		Rhizo	Roots	Old leaves	Young leaves	Stem	Fruit
Ca	MEZ vs MO	***	ns	*	ns	ns	*
	MEZ vs RA	***	ns	ns	**	ns	ns
	MO vs RA	***	ns	*	**	ns	*
K	MEZ vs MO	*	*	ns	ns	ns	ns
	MEZ vs RA	ns	ns	ns	ns	ns	ns
	MO vs RA	*	*	ns	ns	ns	ns
Mg	MEZ vs MO	ns	ns	ns	ns	ns	ns
	MEZ vs RA	ns	ns	ns	ns	*	ns
	MO vs RA	ns	ns	ns	ns	*	ns
Na	MEZ vs MO	**	ns	ns	ns	ns	**
	MEZ vs RA	*	ns	ns	ns	ns	**
	MO vs RA	*	ns	ns	ns	ns	ns
P	MEZ vs MO	*	ns	ns	ns	ns	ns
	MEZ vs RA	ns	ns	**	ns	ns	ns
	MO vs RA	*	ns	**	ns	ns	ns
S	MEZ vs MO	**	ns	ns	*	*	ns
	MEZ vs RA	**	ns	ns	*	*	ns
	MO vs RA	ns	ns	ns	ns	ns	ns

p-level: ***=<0.001, **=<0.01, *=0.05, ns=not significant